

FIG. 1

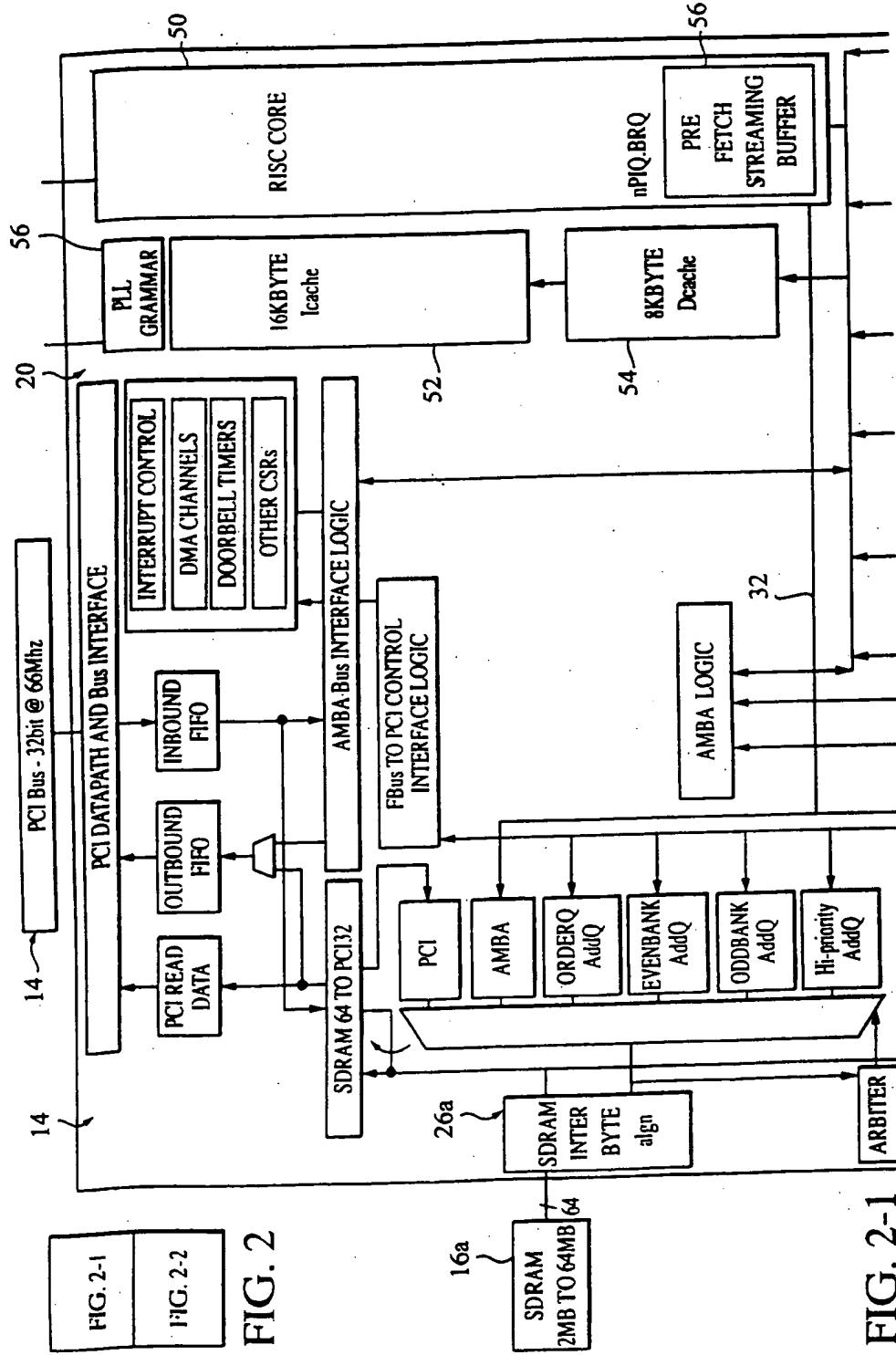


FIG. 2-1

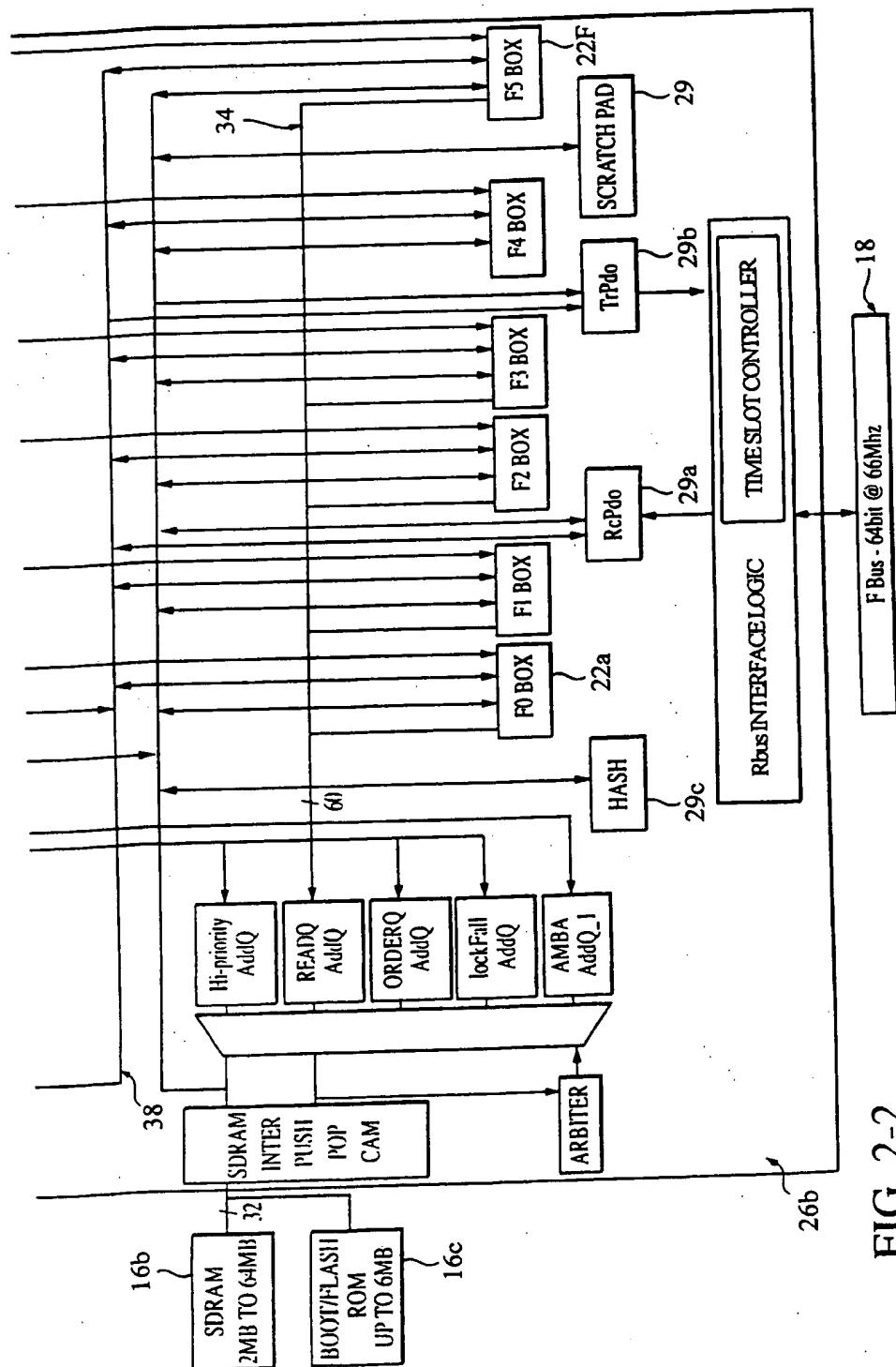
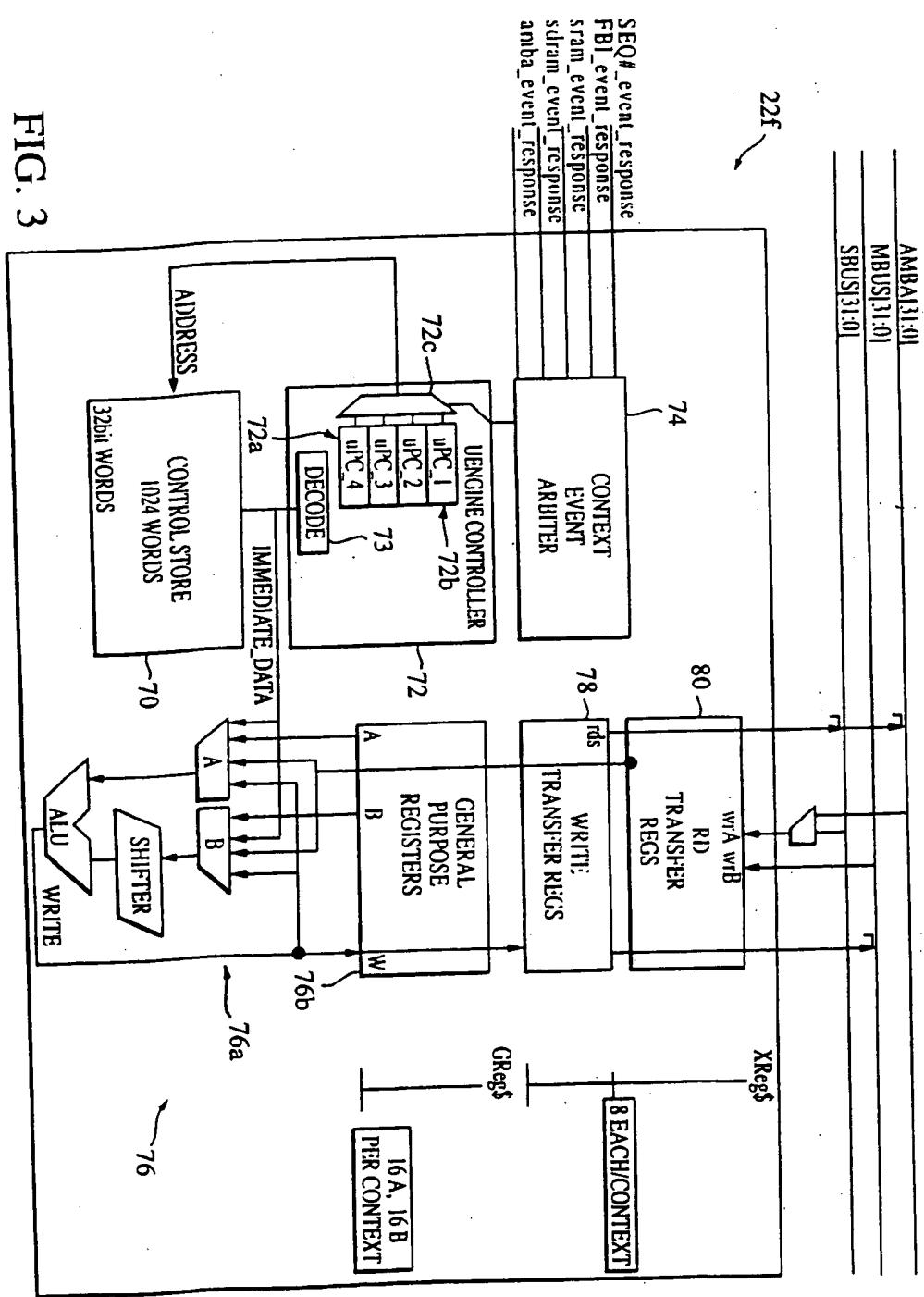


FIG. 2-2

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FIG. 3



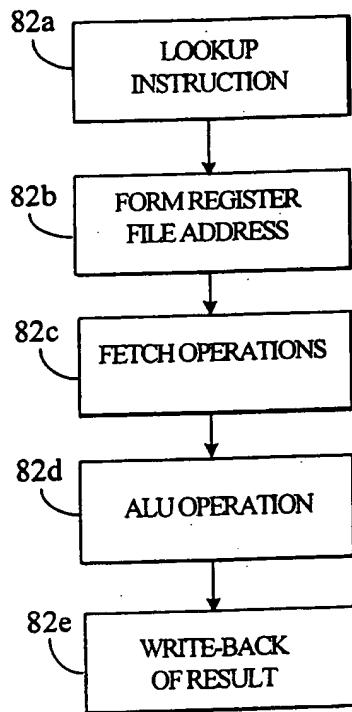


FIG. 4



ALU/SHIFT (set cc)	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0		
ALU/SHIFT (set cc)	0	0	sw	shift	rel	dest	reg	amount	rs	A	rel	source	B	rel	source	ro	im	Bi	ALUop															
ALU/SHIFT (set cc)	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0		
ALU/SHIFT (set cc)	0	0	sw	shift	rel	dest	reg	amount	A	rel	source	B	rel	source	1	0	ALUop																	
ALU/SHIFT (set cc)	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0		
ALU/SHIFT (set cc)	1	0	0	dest	reg	sw	A	absolute	source	loB	Abs	Sec	Up	B	Sr	ALUop																		

Shift Decode:

(rs,rl) decode ([13:0] shifts into [63:32] and take [63:32]):

- 00 = left rotate
- 01 = right shift (32-ShftAmt = Right Shift Amt)
- 10 = left shift
- 11 = double shift (upper A-op shifts into lower B-op)

==> "left rotate" of zero gives zero shift (otherwise zero amount signifies indirect shift)

ALU-OP decode:

0000 = B	0100 = $\sim A \& B$ (\sim and)	1000 = A-B	1100 = A+B(8)
0001 = $\sim B$	0101 = XOR	1001 = B-A	1101 = A+B(16)
0010 = A&B (and)	0110 = OR	1010 =	1110 = A+B
0011 = A& \sim B (and \sim)	0111 = mul-stuff	1011 =	1111 = A+B+Cin

FIG. 5